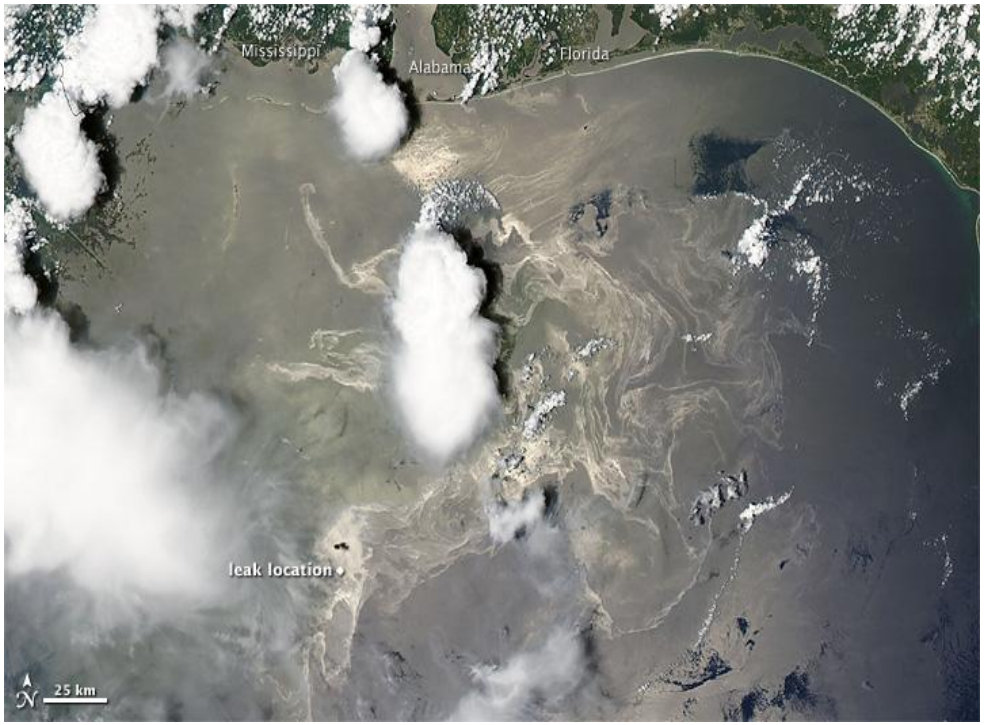
United States Environmental Protection Agency

Gulf Oil Spill Science and Research Planning Activities



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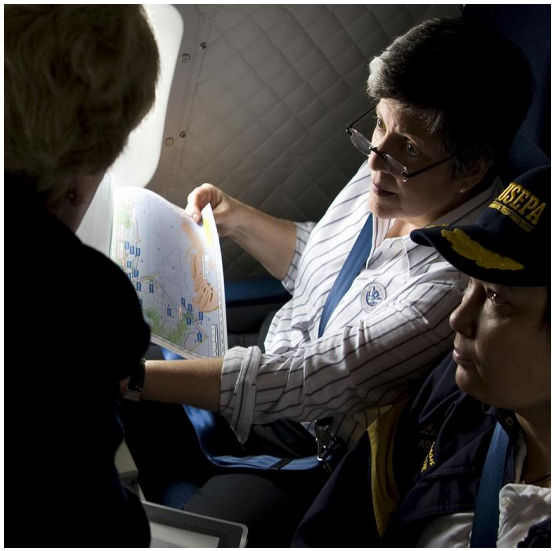
Oil Spill: Response

- On April 22, the Deepwater Horizon rig capsized and sank – 11 workers died.
- Following that human tragedy has been an environmental and economic disaster.
  - More than **600** miles of shoreline have been impacted in five states;
  - More than **80,000** square miles of federal fishing waters have been shut down; and
  - **36** National Wildlife Refuges have been threatened.
- This unprecedented disaster has been met by our unprecedented response.

Oil Spill: Response

- More than 45,000 responders.
  - At the height of the response, EPA had more than 40 workers dedicated to the response in our DC-based Emergency Operation Center each with reach back to their home offices and about 190 working in our regional offices along the Gulf.
- The US Coast Guard has lead the federal response.
  - Coordinating federal agencies, include: EPA, DOI, DOE, DHS, NOAA, SBA.
  - Working closely with state and local governments.



EPA's Role: Monitoring Efforts

- To assess any health threats or major environmental challenges, **EPA's primary role** is monitoring:
  - Air
  - Water
  - Sediment

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ORD's Role: Science to Support the Response

- ORD provides scientific expertise to support EPA's response efforts and decision-making
  - Rapid "deployment" of cross-ORD science team
  - Participation in Emergency Operations Center to support response and address questions
  - Identification of issues or challenges that might arise

ORD's Role: Science to Support the Response

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Accomplishments

- Established an EPA website to solicit suggested solutions for use in response to the oil spill.
  - Received and reviewed more than 1,800 suggestions, some of which were provided to BP
- Participated in the Interagency Alternative Technology Assessment Program (**IATAP**), under the purview of the USCG
  - EPA received over 100 submissions for review (total of 4000)
- Hosted an Alternative Coastal Protection and Cleanup Technology Forum in New Orleans
- Participated in outreach sessions with academic institutions and communities in the Gulf

ORD's Role: Science to Support the Response

Accomplishments

- Toxicity Testing of Dispersants on NCP Product List
  - EPA's research provided critical and timely information on the toxicity of the chemical dispersants
  - Tests were conducted on eight of the dispersants listed on the National Contingency Plan Product Schedule.
    - High throughput screening tests for endocrine disrupting chemicals
    - In vitro tests for endocrine disrupting chemicals
    - Whole animal toxicity tests
      - The results of standard toxicity tests on sensitive aquatic organisms found in the Gulf indicate the eight dispersants are similar to one another.
      - The results confirm that Corexit 9500A, the dispersant used in response to the oil spill in the Gulf, is generally no more or less toxic than the other available alternatives.

- Chemical Analyses
  - EPA's research identified the unique chemical signature to enable detection of DWH dispersants and develop a method of detection

- Dispersant Effectiveness Tests
  - EPA conducted tests on the efficiency of eight of the dispersants listed on the National Contingency Plan Product Schedule.

ORD's Role: Science to Support the Response

Accomplishments / Ongoing Efforts

- Biodegradation
  - Research is underway to determine the effect of dispersants on the biodegradation of oil
- Air sampling of the Oil Burns at Sea
  - Adapted research capability to sample for dioxin
- On board vessel support
  - EPA research scientists provide on board technical expertise on ships sampling and monitoring for oil and dispersants

ORD's Role: Science to Support the Response

Future Efforts

- The EPA Office of Research and Development received $2 million in Supplemental funding in FY2010, for dispersant research

- Targeted for EPA's competitive Science to Achieve Results (STAR) research program. EPA will award research grants to institutions in the Gulf, including minority academic institutions
  - Areas of focus include:
    - Toxicity of chemical dispersants and dispersants and oil in the environment
    - Dispersant application, surface washing and bio-remediation agents and other mitigation measures
    - Ecological risk assessment on a broad range of aquatic and land species affected by the Gulf oil spill on near-shore and coastal environments

Oil Spill Role of Science and Research

Questions to be Addressed / Research Needs

- Efficacy and impact regarding the use of chemical dispersants.
- Better understanding of the environmental and human health impacts of dispersants and chemically-dispersed oil.
- Risks to human health from exposure to chemical dispersants and chemically-dispersed oil mixtures through both direct or indirect exposure pathways
- Support design of innovative and more benign (green) approaches to
  - address oil spill mitigation and remediation in the future.
  - Focus on the application of green chemistry principles and effective products while reducing their toxicity and persistence in the environment.

Oil Spill Role of Science and Research

Collaboration with other Agencies and Entities

- Assessing loss of ecosystems services due to DWH oil spill with National Resources Damage Assessment (NRDA), including NOAA and National Park Service.
- Wave tank studies to quantify the toxicity of dispersant oil on fish and invertebrates (collaborating & leveraging with the Canadian Government).
- Collaborating with NIEHS on Gulf long-term follow-up study for oil spills clean-up workers and volunteers.

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Oil Spill Role of Science and Research

Questions?